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September 25, 1957

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Attention: (Contracting Officer)

Subject: (Budgetary Estimate Project X Receivers
Philco No. 791-43)

Enclosure: (1) [redacted] Quotation No. 791-43 (4 copies) 25X1
(2) Drift of Frequency with Time (4 copies)
(3) Resetability Errors (4 copies)

Gentlemen:

We are pleased to submit herewith our budgetary estimate, enclosure (1), covering production quantities of transistorized communications receivers RR-11AA, tuners RR-11BB and two tuner receivers RR-11AA/BB.

In accordance with the discussions in our meeting of 21 August 1957 with representatives of your organization, we are proposing that the fabrication of production quantities of the subject equipment be authorized in the near future.

We believe that the production of the subject units is feasible through the correction of the problems, methods of correction for which were agreed to in the above mentioned meeting, see enclosure (2) and (3). These problems are recommended for solution by means of the redesigning methods described in enclosure (2) and (3). This redesign will result in production techniques, such as die-casting of mechanical components, instead of metal stamping and forming with their attendant economies in time and cost.

We wish to point out that our proposal has included a reasonable amount to cover the costs of design improvements.

Very truly yours,

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[redacted] al Division

[redacted]

General Sales Manager

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BUDGETARY ESTIMATE

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791-43

Washington, D. C.

We offer the following quotation for acceptance within 30 days from this date.

Date 9/24/57

ITEM	QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL PRICE
1		Transistorized Communications Receiver RR-11AA		
	100		$1,508.76	$150,876.00
	200		1,021.88	204,376.00
	400		769.50	307,800.00
2		Transistorized Communications Tuner RR-11BB		
	100		412.71	41,271.00
	200		316.36	63,272.00
	400		285.58	114,232.00
3		Transistorized Communications Two Tuner Receiver RR-11AA/BB		
	300		1,230.67	369,201.00
	500		997.21	498,605.00
	700		926.31	648,417.00
	1000		832.26	832,260.00

DELIVERY:

F.O.B., Contractor's Plant, Philadelphia, Pennsylvania in accordance with the following schedule:

100 - Starts six (6) months after receipt of award and complete six (6) months thereafter.

200, 300, 400, 500, 700, 1000 - Starts six (6) months after receipt of award and complete twelve (12) months thereafter.

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DRIFT OF FREQUENCY WITH TIME

PROBABLE CAUSE	RECOMMENDATIONS
Variations of the capacitance of the trimmer.	Reduce the trimmer range so that its capacitance will be a smaller part of the total. Increase the physical size of the trimmer so that more tuning screw turns are required to traverse the entire capacitance range. This will result in a negligible capacitance changes with backlash errors. Use a more stable trimmer.
Changes in the mechanical dimensions of the tuner due to the release of stresses and strains which developed during the construction process.	Delay the electrical alignment of the tuner until the stresses and strains have been released, or use heat cycling to accelerate the process.
Different testing environments between original electrical alignment of tuners and subsequent tests.	Special receiver case should be used so that the cam screws, cores and trimmer capacitance can be adjusted in an environment more nearly approaching that encountered in normal usage. If the tuner is re-designed the above adjustment controls should be placed in a readily available position when the tuner is seated in the case.
Mechanical misalignment of the tuner due to its tight fit in case.	The present case dimensions should be slightly enlarged so that tuner can be seated in the case in an unstrained condition and without conflicting with adjacent receiver components.
Lack of rigidity of tuner frame and carriage.	Die-casting of important parts of tuner assembly.
Degradation of battery voltage.	Use large capacity external battery packs for all laboratory testing.
Changes in electrical component values due to long term aging.	The vernier dial should provide a full range of adjustment to take care of constant frequency changes. The trimmer capacitor should be used for proportional frequency changes.

RESETABILITY ERRORS

PROBABLE CAUSE	RECOMMENDATIONS
Tolerance between core and coil form.	This condition is considered minor, but should be investigated further.
Lateral motion of cam follower.	Friction between profile tape and cam should be reduced. The cam follower screw should be re-designed to possess additional threads of better tolerance.
Vertical motion of profile tape due to the types of brackets holding tape and changes in spring tension.	Re-design brackets.
Tolerance between carriage and guide rods results in cocking.	Tolerance now held to a fraction of a mil. This condition can not be improved unless different method used for guiding carriages. The use of larger guide rods will help correct this condition.
Sharp bends in profile tape required to accomodate existing coil characteristics.	Coil design should be improved or the coils and cores should be graded in advance.
Lack of rigidity in frame prevents smooth movement of carriage.	Heavier materials of closer tolerances should be used to fabricate tuner. Die casting of important parts is considered desirable.